

Translation

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P 26921	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP2003/011381	International filing date (day/month/year) 14 October 2003 (14.10.2003)	Priority date (day/month/year) 14 October 2002 (14.10.2002)
International Patent Classification (IPC) or national classification and IPC G01N 27/414		
Applicant INFINEON TECHNOLOGIES AG		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of <u>6</u> sheets, including this cover sheet. <input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT). These annexes consist of a total of <u>5</u> sheets.
3. This report contains indications relating to the following items: I <input checked="" type="checkbox"/> Basis of the report II <input type="checkbox"/> Priority III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability IV <input type="checkbox"/> Lack of unity of invention V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement VI <input type="checkbox"/> Certain documents cited VII <input type="checkbox"/> Certain defects in the international application VIII <input type="checkbox"/> Certain observations on the international application

Date of submission of the demand 11 May 2004 (11.05.2004)	Date of completion of this report 22 November 2004 (22.11.2004)
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

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International application No.

PCT/EP2003/011381

I. Basis of the report

1. With regard to the elements of the international application:*

- ☐ the international application as originally filed
- ☒ the description:
 pages 1-30, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____
- ☒ the claims:
 pages 13-17, as originally filed
 pages _____, as amended (together with any statement under Article 19
 pages _____, filed with the demand
 pages 1-12, filed with the letter of 25 October 2004 (25.10.2004)
- ☒ the drawings:
 pages 1/6-6/6, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____
- ☐ the sequence listing part of the description:
 pages _____, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/fig _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

Novelty (N)	Claims	1-12	YES
	Claims		NO
Inventive step (IS)	Claims	1-12	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-12	YES
	Claims		NO

2. Citations and explanations**Cited documents**

Reference is made to the following documents:

D1: WO-88 08972

D2: US-2001/044177

D3: FR-A-2 779 826

D4: US-A-4 322 680

D5: US-A-4 514 263

D6: EP-A-0 241 991

1. The invention concerns a sensor arrangement comprising a plurality of sensor devices formed on and/or in a substrate, each of the sensor devices having:
 - i. an electric signal converter in the form of a field effect transistor (FET);
 - ii. a sensor element coupled to the signal converter, with which the electrical conductivity of the signal converter following a sensor event on the sensor element can be characteristically influenced;
 - iii. a device for keeping constant an electric voltage applied to the signal converter;

- iv. a device for detecting the value of the electric current flowing through the signal converter in the form of a sensor signal.
2. A sensor arrangement such as described above is known from document D1, in particular figure 2, IGFET 40, sensor element 32, in conjunction with the description, page 8, lines 28 to 30 and page 16, lines 27 to 32.
3. Documents D2 to D6 also disclose sensor arrangements having the above-mentioned features.
4. The subject matter of the invention differs from the device known from D1 (or from D2 to D6) by virtue of a calibrating device which is designed such that it can bring the gate region of the FET to an electric potential at which the current is not affected by parameter fluctuations in the FET.

The subject matter of claim 1 is thus novel (PCT Article 33(2)).

5. None of the documents cited in the search report discloses or even mentions this type of calibrating device.

The subject matter of claim 1 is thus inventive (PCT Article 33(3)).

By using this type of device it is possible, for example, to prevent the measuring result from being falsified as a result of different threshold voltages that may arise in the FET during the production process.

6. Independent claim 11 concerns a method that corresponds to the device according to claim 1; claim 11 is therefore also considered novel and inventive (PCT Article 33(2) and (3)).
7. Dependent claims 2 to 10 and 12 are dependent on claims 1 and 11, respectively, and therefore likewise meet the PCT requirements for novelty and inventive step.
8. The invention is industrially applicable (PCT Article 33(4)).

9. Additional observations

- 9.1 The calibrating device is defined in terms of its effect, thereby contravening PCT Article 6.

The description, however, discloses a number of possible designs for achieving this effect (see figures 8 to 10 and the corresponding parts of the description). Since the inclusion of one of these designs in claims 1 and 11 would unnecessarily restrict the scope of the claims, it does not appear possible to better define the calibrating device. This definition appears to become clear when the description is used to interpret the claims.

- 9.2 Independent claims 1 and 11 have not been drafted in the two-part form defined by PCT Rule 6.3(b).
- 9.3 Contrary to PCT Rule 5.1(a)(ii), the description does not cite documents D1 to D6 or indicate the relevant prior art disclosed therein.

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- 9.4 The features of the claims are not followed by reference signs placed between parentheses (PCT Rule 6.2(b)).
- 9.5 The description and more particularly the wording of the problem on page 9, lines 24 to 28, is inconsistent with the claims (PCT Article 6).